Small Grain Insect Pests

APHIDS:

Occurrence - Aphids can damage plants anytime after plant emergence.

When to Scout - Early spring until maturity.

Description- - Aphids are small, soft-bodied, pear-shaped insects. Their piercing sucking mouthparts look like a small tube arising from under the head. Their color varies from green to blue to yellow.

Damage - Heavy infestations can cause stunting and yellowing of plants. Aphids vector disease such as Barley Yellow Dwarf (BYD), a virus that reduces yields.

How to Scout - When surveying for aphids, note aphid population on 10 plants in the four square foot area. Rating below is aphids per plant.

Rating:

0 = none
1 = slight, less than 50
2 = moderate, 50-100
3 = severe, greater than 100 per plant

ARMYWORM:

Occurrence - From mid-April to late June. Look for lodged vegetation in low, wet areas. A cool, wet Spring favors armyworm development.

When to Scout - Mid-April to late June.

Description - Larvae are greenish brown with a narrow, mid-dorsal stripe and two orange stripes along each side. The yellowish head is honeycombed with dark lines. Armyworms are 1 1/2 inches long when full grown.

Damage - Armyworms are primarily leaf feeders. However, they will feed on lawns and tender kernels and may clip off the seed head. Infestations are more common in barley than in wheat. Armyworms may feed on oats, rye, and some forages.

How to Scout - Scout each field at least once a week. Sample the entire field; check five locations per 50 acres of field size.

(1) First, check the field margins and any lodged plants. If armyworms are present, begin surveying the standing grain. Armyworms feed during the late afternoon, night and early morning. They may be on the ground when you are in the field.

(2) Proceed at least 30 paces into the field before sampling. Pick the sample spots randomly and examine the ground and foliage within your four square foot sample frame (made from strips of wood). Count the number of armyworms present and record number per four square feet. Note the average larval length. Walk to the remaining locations and repeat the process.

Economic Threshold - An average of 16, 1/2 to 3/4 inch long armyworms per four square foot sample. Worms longer than one inch have completed most of their feeding. If the grain is nearly mature and no head clipping has occurred, then controls are not advised.

NOTE: Warm, spring weather favors parasite and disease development. Note any parasitized worms.

CEREAL LEAF BEETLE:

Occurrence - April to maturity.

When to Scout - April to maturity.

Description - Adults are shiny black beetles with red legs and thorax, approx. 3/16 of an inch long. Larva are pale yellow and soft bodied. They glue pieces of trash and leaves on their backs as camouflage. They also place fecal material on their backs.

Damage - Adults and larvae eat out long, narrow strips of tissue between veins.

How to Scout - Check ten plants per sample site for larval or adults and rate according to the table.

Rating Table

1. Slight - an average of 1 larva and/or 1 adult per 2 stems.
2. Moderate - an average of 3 larvae and/or 3 adults per 4 stems.
3. Severe - an average of 1 larva and/or 1 adult per plant.

Economic Threshold - Controls may be applied if there is an average of more than 1 larva and/or 1 adult per stem. If the flag leaf is affected, then controls must be applied if there is 1 larva or 1 adult or both per flag leaf. The flag leaf is responsible for development of the grain head. Be certain to check if it is being damaged by the cereal leaf beetles.

HESSIAN FLY:

Occurrence - Both fall and spring infestations may occur. Two broods in Tennessee.

When to Scout - Early spring until June.

Description - The Hessian Fly adult is a small fragile fly. The larvae is a very small white legless maggot. The larval stage is damaging and may be found between the leaf sheath and the stalk. However, the pupal or "flax-seed" stage may be found if an infestation has occurred. This is a small brown seed like pupal case, usually found at the base of the plant between leaf sheath and stalk.

Damage - A fall infestation can result in stand loss and broken (lodged) plants. Spring infestation usually results in plants of reduced vigor and bad color. Also, seed head size may be greatly reduced.

How to Scout - Look for thin stunted, chlorotic patches in the field. Examine the base of these plants for presence of the "flax-seed".

Economic Threshold - Most states suggest that yield losses occur when 20% of the plants are infested. Use resistant varieties if available. These varieties continue to be less affected than the susceptible wheat varieties such as Coker 916. Plant only those varieties which have been designated as resistant in your area (State), such as Arthur and Caldwell. If you must plant a susceptible variety, plant after October 15.

New BioType L has been recognized in Tennessee. No particular variety has been developed for this biotype.

Hessian Fly: This insect is beginning to appear in wheat fields because some wheat has been planted too early. Any wheat planted prior to October 15 will be more susceptible to Hessian Fly attack. The new biotype in Tennessee that was determined a few years ago is Biotype-L. There are no new varieties that are resistant to this biotype. In 1994, wheat fields in Lake County were found to be heavily infested with the Hessian Fly because the wheat was planted too early. This insect has two generations: fall and spring. The fall generation usually causes more damage because the weakened plants go through cold weather and do not survive from the feeding of the larvae. Check plants that have dead tillers in the spring for sign of the pupae. They will be just behind the leaf sheath. Color is brownish. There may be several pupae per tiller. Look closely for the pupa are quite small. Heavy infestations can reduce wheat yield by 50% or more. Plant later to avoid this problem.

Control Recommendations for Insects & Mites on Barley, Oats, Rye & Wheat*

Pest	Material		Amount Per Acre	Preharvest in Days	Remarks and Precautions
Aphids	Methyl Parathion	4EC	1/4 - 1.5 pts.	15	Do not apply within 15 days of harvest for fodder or grain.
	Di-Syston	8	4 - 12 ozs. (Wheat) 1 pt. (Barley)	30 see label	Do not use on Rye. 30 day preharvest waiting period.
	Warrior T Gaucho 480		2.56 - 3.84 ozs. 1 to 3 oz/100 wt of seed.		Read the label. Read label before using. Or have seed treated by professionals.
Armyworms & Fall Armyworms	Methyl Parathion	4EC	1 1/2 pts.	15	15 day preharvest waiting period. Refer to label before use. Use 15 gallons mix per acre on armyworms.
	Warrior T		2.56 - 3.84 ozs.	see label	
	Lannate LV		3/4th to 1.5 pts	7 - 10	Do not apply within 7 days of harvest. Use 15 gallons mix per acre for all armyworms for all insecticides used.
	Sevin Tracer	XLR	1 qt. 1.5 to 3 ozs/acre	21 (grain) 14	
Cereal Leaf Beetle	Sevin	XLR	1 qt.	21 (grain)	
	Furadan	4F	1/4 - 1/2 pt.	Don't feed treated forage to livestock.	WARNING: See label for restrictions. Do not use on Rye.
	Lannate	LV	3/4 - 1 1/2 pts.	7 (harvest) 10 (grazing)	
	Warrior T Tracer		2.56 - 3.84 ozs. 1 to 3 oz/acre	see label 14	read the label
Cutworms	Methyl Parathion	4EC	3/4 - 1 pt.	15	15 days preharvest waiting period.
	Warrior T		1.92 - 2.56 ozs.	see label	30 days
Grasshoppers	Warrior T		2.56 - 3.84 ozs.	see label	30 days
	Methyl Parathion	4EC	1 1/2 pts.	15	15 days preharvest waiting period.
	Furadan	4F	1/4 - 1/2 pt.	See Label.	Don't feed forage to livestock.

Hessian Fly - See Page 2 Discussion.

*See label for crops registered and insect pests.

Precautionary Statement

To protect people and the environment, pesticides should be used safely.
This is everyone's responsibility, especially the user.
Read and follow label directions carefully before you mix, apply store or dispose of a pesticide.
According to laws regulating pesticides, they must be used only as directed by the label.
Persons who do not obey the law will be subject to penalties.

Disclaimer Statement

Pesticides recommended in this publication were registered for the prescribed uses when printed. Pesticide regulations are continuously reviewed. Should registration or a recommended pesticide be canceled, it would no longer be recommended by The University of Tennessee. Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others that may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product.

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS
The University of Tennessee Institute of Agriculture, U.S. Department of Agriculture, and county governments cooperating in furtherance of Acts of May 8 and June 30, 1914.
Agricultural Extension Service Charles L. Norman, Dean